PERMIT TO OPERATE EVALUATION
Dry-off and bake Oven,
Modification with Low-NO_x Burner - Rule 1147

Applicant's Name:	McDowell and Craig Manufacturing Co.
Company ID No.:	17841
Mailing Address:	13146 E. Firestone Blvd., Norwalk, CA 90650
Equipment Address:	13146 E. Firestone Blvd., Norwalk, CA 90650

EQUIPMENT DESCRIPTION:

Application no. 521532 (Standardized Permit, Modification to PO #R-A11015, A/N A10510):

DRY-OFF ~~PREHEAT~~ AND BAKE ~~DRYING~~ OVEN, CIRCLE INDUSTRIAL, 11'-0" W. X 46'-0" L. X 18'-0" H., CONSISTING OF:

1. UPPER DRY-OFF ~~PRE-HEAT~~ CHAMBER, WITH ONE 1,000,000 BTU PER HOUR NATURAL GAS-FIRED BURNER, ONE 10 HP. CIRCULATING FAN, AND ONE 7.5-HP. AIR SEAL FAN (RULE 219 EXEMPT).
2. LOWER BAKE ~~DRYING~~ CHAMBER, WITH ONE MAXON, CYCLOMAX, ~~2,200,000~~ 2,700,000 BTU PER HOUR NATURAL GAS-FIRED LOW NOx BURNER, ONE 10-HP. CIRCULATING FAN, AND ONE 7.5-HP. AIR SEAL FAN.

Application no. 521697:

TITLE V PERMIT REVISION, DE MINIMIS SIGNIFICANT

HISTORY:

These applications were submitted by McDowell and Craig Manufacturing Company, Inc. on April 13, 2011 for the modification of a pre-heat and drying oven in order to comply with the NOx emission requirements of Rule 1147. The facility replaced the 2,200,000 BTU per hour main burner in the drying chamber burner with a Maxon, Cyclomax, 2,700,000 BTU/hour low-NOx burner. The new burner has a higher rating than the one being replaced because, according to the applicant, a suitable burner of the same or lower BTU rating was not available.

The facility was required to source test the oven burners in order to demonstrate that the new burner can meet the NOx emission requirement of 30 ppm, per Rule 1147(c)(1). The testing conditions were given to the facility in a letter dated May 5, 2011. See a copy in this file. The facility conducted the source test on January 30, 2012. The source test results report was approved and found to be 'conditionally acceptable' by the Monitoring and Analysis Division. The NOx and CO emission factors were approved for compliance determination, as well as for emission calculations.

A/N	Previous		Equipment
	Permit No.	A/N	
521532	R-A11015	A10510	Preheat and drying oven, with Maxon, Cyclomax, low-NOx, natural gas-fired 2,700,000 BTU/hr burner replacing a 2,200,000 BTU/hr burner in the drying oven.
521697	-	-	Title V permit revision, de minimis significant

According to the compliance database, there have been no notices of violation (NOV) issued to this facility in the past two years. One Notice to Comply (NC #E13513) was issued on 6/19/12 as a written 'warning' for the facility to submit future Title V 500-ACC and 500-SAM in a timely manner. No complaints have been filed against this facility in the past two years. This is the first revision since the Title V renewal issued on September 2, 2011. Also included in this revision will be an update to Section A, responsible official and contact person since both have left the company. Jeff McDowell, President, will be the new contact person and responsible official.

PROCESS DESCRIPTION:

McDowell and Craig Mfg. Company manufactures metal office furniture. The facility operates three spray booths and one drying oven. The oven is used as part of a conveyorized dry-off and baking process. However, prior to parts reaching the oven, the parts are processed through an enclosed cleaning system, which is exempt from permitting under Rule 219(o)(3). Once the parts exit the cleaning system, they enter the upper dry-off chamber of the dry-off and bake oven (A/N 521532). A 1 mmBTU/hr burner is used to dry off any remaining water from the cleaning process. This burner is exempt from permitting under Rule 219(b)(2) and (p)(4). See email in this file, dated March 29, 2011. The parts then go through the conveyorized spray booth where high-solid bake enamel is applied (PO #F36436, A/N 338094). From there, the parts enter the lower chamber where the enamel coating bakes. The original 2,200,000 BTU/hr natural gas-fired burner in this chamber was replaced by a Maxon, Cyclomax, low-NOx, 2,700,000 BTU/hr burner (Rule 1147). This oven operates at a maximum temperature of 455°F (set to 450°F during the source test on 1/30/12).

The typical operating schedule is 8 hours per day, 6 days per week and 52 weeks per year, while the maximum operating schedule is 24 hr/day, 7 day/week, and 52 week/year.

EMISSION CALCULATIONS:

The replacement low-NO_x, 2.7 mmBTU/hr burner has a higher BTU rating and lower NOx emissions (<1 lb/day). There is a 1 mmBTU/hr burner in the pre-heat chamber, but it is exempt from permitting under Rule 219(p)(4)(A). Although CO and PM_{10} emissions were not calculated under the previous permit evaluation, their emissions compared to the old emissions using default emission factors shows a small increase. The emissions were calculated using spreadsheets, which are in this file as Attachments 1 and 2. See the emissions summary table on the next page.

The previous permit had associated ROG emission of 1.41 lb/hr (33.8 lb/day), which occur during the drying process from the VOC-containing materials that are applied to the metal parts. There will be no change to these emissions under this application. Therefore, the ROG will be transferred to the new permit.

Summary of Emission Increases/Decreases Compared to Previous Permit to Operate

A/N	Burner rating (BTU/hr)	NO_x Emissions		CO Emissions		PM_{10} Emissions		ROG Emissions	
		(lb/hr)	(lb/day)	(lb/hr)	(lb/day)	(lb/hr)	(lb/day)	(lb/hr)	(lb/day)
521532	2,700,000	0.099	2.37	0.195	4.68	0.020	0.47	1.41[(a)]	33.8[(a)]
A-10510 (previous permit)	2,200,000	0.272	6.537	0.073[(b)]	1.76[(b)]	0.016[(b)]	0.38[(b)]	1.41	33.8
Difference		-0.173	-4.167	+0.122	+2.92	+0.004	+0.09	0.0	0.0

Notes: (a) From VOC-containing material thruput. No change from previous permit.
(b) Not calculated under previous evaluation (A/N A10510), but based on default emission factors.

RULES AND REGULATIONS:

RULE 212: SIGNIFICANT PROJECT PUBLIC NOTIFICATION

A public notice is not required for this project since the equipment is not within 1000 feet of a school, there will be no significant increase in emissions [below Rule 212(g) thresholds], and the increase in MICR due to the increase in burner BTU rating was $<1 \times 10^{-6}$ (7.48×10^{-8} actual).

RULE 401: VISIBLE EMISSIONS

Visible emissions from the operation of this equipment are not expected. No complaints, N/C or NOV have been issued in the previous two years for visible emissions.

RULE 402: NUISANCE

The operation of this equipment is expected to comply with this rule. Operation of the replacement natural gas-fired burner is not expected to result in any odors. No complaints, N/C or NOV have been issued in the past two years for nuisance.

RULE 407: LIQUID AND GASEOUS AIR CONTAMINANTS

This equipment is required to emit carbon monoxide (CO) not to exceed 2000 ppmv, measured on a dry basis, averaged over 15 consecutive minutes. The source test conducted on January 30, 2012 demonstrated that the new Maxon, Cyclomax low-NOx burner achieved 98 ppm CO at 3% O_2.

RULE 1147: NOX REDUCTIONS FROM MISCELLANEOUS SOURCES

The burner on the drying oven under A/N 521532 was replaced by a low-NO_x, natural gas-fired, 2,700,000 BTU/hr burner. The facility source tested the oven in order to demonstrate that the new burner can meet the NOx emission requirement of 30 ppm, per Rule 1147(c)(1). There is also a 1 mm BTU/hr burner in the pre-heat chamber, but it is R219-exempt. Since there is only one oven exhaust, the concentration measured is for the combined burner NO_x. The facility conducted the source test on January 30, 2012. The source test results report was approved and found to be 'conditionally acceptable' by the Monitoring and Analysis Division. The NO_x concentration was tested at 23 ppmv @ 3% O_2 at normal-fire (46%). The corrected CO concentration was tested at 98 ppm @ 3% O_2, also at normal-fire.

REGULATION XIII:

BACT: There will be no increase in NO_x, PM_{10} or ROG emissions greater than 1 lb/day as a result of the burner replacement. BACT is not triggered. There is an increase in CO of 2.92 lb/day since the new burner is slightly larger than the existing burner. However, there is no additional BACT for CO from a natural gas fired oven. Compliance is expected.

Offsets: Since the new burner is low NO_x, there is a decrease in NO_x emissions (<1 lb/day) even though the total BTU rating is higher. There is a slight increase in PM_{10} due to the increase in BTU rating of the new burner. However since the emission increase is <0.50 lb/day, offsets are not required. The CO increase is 2.92 lb/day but offsets are not required since we are in attainment for CO.

Modeling: There will be a decrease of NOx emissions from this project. The maximum CO and PM_{10} emission increases will be much below the maximum allowable CO and PM_{10} emissions for combustion sources <2 mmBTU/hr (Table A-1). See the summary table below. Therefore, no further modeling is required.

Summary of Maximum Emission Increases for Project Modeling Analysis

Burner Rating, (mmBtu/hr)	NO_x Emissions		CO Emissions		PM_{10} Emissions	
	Calculated (lb/hr)	Allowed (lb/hr)	Calculated (lb/hr)	Allowed (lb/hr)	Calculated (lb/hr)	Allowed (lb/hr)
<2 (increase)	-0.173	+0.20	+0.122	11.0	+0.004	1.2

RULE 1401: MAXIMUM INDIVIDUAL CANCER RISK ASSESSMENT

There will be not a significant increase in health risk as a result of the burner modifications. The MICR increase due to the 500,000 BTU/hr increase in burner rating is expected to be $<<1 \times 10^{-6}$ (7.8×10^{-8}, actual). The HIA/HIC will also be <<1.0. See attached emission calculations and screening risk assessment spreadsheets. Therefore, compliance with this rule is expected.

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This facility is not in the RECLAIM program. The proposed project is considered as a "de minimis significant permit revision" to the Title V permit for this facility.

Rule 3000(b)(6) defines a "de minimis significant permit revision" as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Criteria Pollutant Emission Thresholds

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NO_x	40
PM_{10}	30
SO_x	60
CO	220

To determine if a project is considered as a "de minimis significant permit revision" for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the 1st permit revision to the Title V renewal permit issued to this facility on September 2, 2011. Also included in this revision is an update to Section A with a new contact person and responsible official. The following table summarizes the cumulative emission increases resulting from this permit revision, the first since the Title V renewal permit was issued:

Title V Permit Revisions Summary

1st Revision	HAP	VOC	NO_x	PM_{10}	SO_x	CO
Replacement of existing burner with low-NOx burner in drying oven to comply with Rule 1147 requirements (A/N 521532)	0	0	0	0	0	3
Cumulative Total	0	0	0	0	0	3
Maximum Daily	30	30	40	30	60	220

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a "de minimis significant permit revision".

CONCLUSIONS/RECOMMENDATIONS:

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a "de minimis significant permit revision", it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to the facility (Section D).